



## Analysis of cancer cases from Dicle University Hospital; ten years' experience

Analysis of cancer cases

Necmi Arslan<sup>1</sup>, Ahmet Yilmaz<sup>2</sup>, Ugur Firat<sup>3</sup>, Mehmet Halis Tanriverdi<sup>4</sup>

<sup>1</sup>Private Istanbul Health Services, Istanbul,

<sup>2</sup>Department of Family Medicine, Dicle University Medical Faculty, Diyarbakir,

<sup>3</sup>Cukurova Pathology Laboratory, Adana, <sup>4</sup>Diyarlif Hospital, Diyarbakir, Turkey

### Abstract

**Aim:** Cancer is the most common mortality and morbidity reason in the world. In Turkey cancer prevalence is high, and the treatment is expensive. The most important step in preventing and treating cancer is an early diagnosis. We aimed to contribute to the literature by specifying the common cancer types and etiological factors present in Diyarbakir region. **Material and Method:** Archived biopsy reports of patients diagnosed with malignant cancers after histopathological evaluation were studied retrospectively. The cases were dated between 2001 and 2010 and were all taken from the Dicle University Medical Faculty Hospital. **Results:** In total, 3624 cases were examined according to age, gender, year, location, and pathological diagnosis. Of the patients, 41.7% of the cases were female, and 58.3% were male. The average age of the patients was 54.8 years, and the most frequent age of cancer occurring were between 51-60 years (26.7%). In the pathological results distribution, the years that had the most cancer cases were 2006 and 2007. In general, the most frequent cancer location was lung (11.9%). In terms of specific types of cancers, the most frequent type was adenocarcinoma (24.1 %). **Discussion:** The most common type in both genders was adenocarcinoma, and it was found that the most common cancer location was the lung. Our study found that cancer was common in older age groups. We tried to determine the most frequent cancer types in the area by using data from Diyarbakir region.

### Keywords

Cancer; Prevalence; Malignancy

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Corresponding Author: Ahmet Yilmaz, Department of Family Medicine, Dicle University Medical Faculty, Diyarbakir, Turkey.  
T.: +90 41224888001 (4276) F.: +90 4122488004 E-Mail: dearahmetyilmaz@hotmail.com

## Introduction

The prevalence of cancer has been growing worldwide and it represents a significant health problem that influences the entire world [1]. The number of global cancer cases were 32,455,200 over the last five years. There were 14.1 million new cases of cancer in 2012, and it has caused 8.2 million deaths. Cancer has affected 306,700 people in Turkey over the last five years. In 2012, 148,000 people in Turkey were diagnosed, and 91,800 people died from various types of cancer, which represents the second highest cause of death following cardiovascular problems [2, 3]. Moreover, given the fact that the population is both growing and aging, it is estimated that there will be 19.3 million new cancer cases by 2025 if current trends persist [4].

In addition to its significance as a serious health problem, cancer is also an expensive disease to treat. The worldwide cost of cancer treatment is around \$895 billion dollars per year, which amounts to 1.5% of the world's gross revenue; the annual cost in Turkey is about \$2.5 billion dollars [5]. The cheapest way to prevent cancer is to regularly screen high-risk patients and diagnose it as early as possible [6]. First of all, physicians should be well aware of the cancer prevalence in their areas and diagnose patients in the early stages to prevent it from spreading. This awareness is particularly important for family practitioners, who generally have a holistic view of their patients, are more integrated into their society, and hold comprehensive knowledge and expertise of common diseases.

In this study, we evaluated cases of histopathological diagnoses from the Pathology Department of the Dicle University Medical Faculty Hospital, which serves patients from Diyarbakır and other nearby cities. We aimed to contribute to the literature by specifying the common cancer types and etiological factors present in the Diyarbakır area, with the hope of laying a base for more comprehensive work in the future.

## Material and Method

Archived biopsy reports of patients diagnosed with malignant cancers after histopathological evaluation were studied retrospectively. The cases were dated between 2001 and 2010 and were all taken from the Pathology Department of Dicle University Medical Faculty Hospital. The cases were chosen by taking the Ethic's Commission Decision Number 194 (21.09.2010) from Dicle University Medical Faculty Hospital's Ethics Commission. The patients ranged in age from 1 - 99 years. The patients were grouped by age: (0 - 18); (19 - 30); in ten-year intervals from ages 31 to 80; and 81+. Patients were organized into groups by age and then divided into groups by gender. The patients were then assessed separately by age in each gender group. The cancer cases were classified topographically to make them easier to compare. The cancers specific to men and women (i.e., breast, testicular, etc.) were also assessed separately by gender and organized in a frequency table. The types of cancers were also analyzed according to frequency. The data were evaluated using SPSS 18.0. Inappropriately-taken samples, cases with unclear results, duplicate cases, and cases with illegible names or diagnoses were not included in the study. Patients' personal information was not used.

## Results

In total, 3624 cases were examined according to age, gender, year, location, and pathological diagnosis. Of the patients, 41.7% of the cases were female, and 58.3 % were male. In the pathological results distribution, the years that had the most cancer cases were 2006 and 2007 (Figure 1). The average age of the patients was 54.8 years and the most frequently occurring ages were between 51-60 years (26.7%) (Figure2). When the distribution of cancers according to pathological types was examined, the most common type was found to be adenocarcinoma. The distribution of other cancer pathologies are summarized in Table 2. In general, the most frequent type of cancer was lung cancer (11.9 %) (Table 1). In terms of specific types of cancers, the most frequent was adenocarcinoma (24.1 %) (Table 2). Cancer distributions according to age groups are shown in Table 3.

Table 1. Topographical ranking according to the frequency of cancer cases

General ranking		Male		Female	
Cancer types	Frequency(%)	Cancer types	Frequency (%)	Cancer types	Frequency (%)
Lung	11.9	Lung	16.8	Breast	22.0
Stomach	9.6	Stomach	11.2	Colon	9.1
Breast	9.2	Prostate	10.2	Thyroid	8.4
Colon	8.0	Bladder	9.6	Skin	7.9
Skin	7.3	Larynx	8.7	Stomach	7.4
Bladder	6.1	Colon	7.1	Lung	5.2
Prostate	5.9	Skin	6.9	Chest	4.3
Larynx	5.5	Chest	5.9	Cervix	3.8
Chest	5.2	Oral cavity	3.5	CNS	3.7
Thyroid	5.1	Thyroid	2.7	Uterus	3.6
Oral cavity	2.7	Lymphadenopathy	2.6	Renal	2.9
CNS	2.6	Bone	2.4	Bone	2.9
Bone	2.6	Renal	1.9	Over	2.6
Renal	2.3	CNS	1.9	Abdomen	2.1
Lymphadenopathy	2.2	Abdomen	1.5	Hepatic	2.1
Abdomen	1.8	Hepatic	1.5	Nasopharyngeal	2.0
Hepatic	1.8	Esophagus	1.3	Oral cavity	1.7
Cervix	1.6	Nasopharyngeal	1.0	Lymphadenopathy	1.5
Uterus	1.5	Testis	0.6	Larynx	1.2
Nasopharyngeal	1.4	Blood	0.6	Bladder	1.2
Esophagus	1.2	Gallbladder	0.4	Esophagus	1.0
Over	1.1	Neck	0.4	Gallbladder	0.7
Gallbladder	0.6	Mediastinum	0.4	Ophthalmic	0.6
Blood	0.4	Intestinum	0.3	Pancreas	0.3
Neck	0.4	Pancreas	0.2	Vulva	0.3
Testis	0.4	Spleen	0.2	Neck	0.3
Ophthalmic	0.3	Ophthalmic	0.1	Spleen	0.3
Mediastinum	0.3	Breast	0.0	Blood	0.3
Pancreas	0.3	Over	0.0	Vagina	0.3
Spleen	0.2	Cervix	0.0	Mediastinum	0.2
Intestinum	0.2	Uterus	0.0	Intestinum	0.1
Vulva	0.1	Vulva	0.0	Prostate	0.0
Vagina	0.1	Vagina	0.0	Testis	0.0

CNS=Central Nervous System

Table 2. Distribution of cancer cases according to the types

	Male		Female		Frequ- ency (%)
	Frequ- ency (%)	General Cancer Type Dist- ribution	Frequ- ency (%)	General Cancer Type Distribution	
Adeno Ca	24.1	Adeno Ca	26.8	Adeno Ca	20.2
Small Cell Ca	8.6	Small Cell Ca	12.6	Invasive Ductal Ca	16.7
Squamous Cell Ca	8.5	Squamous Cell Ca	8.7	Squamous Cell Ca	8.1
Invasive Ductal Ca	7.0	Non-Small Cell	6.0	Papillary Ca	6.9
Papillary Ca	4.2	Malignant Epithelial Tm	3.7	Small Cell Ca	3.0
Non-Small Cell Ca	4.1	High- Grade UPM	3.2	Malignant Epithelial Tm	3.0
Malignant Epithe- lial Tm	3.4	Basal Cell Ca	2.5	Basal Cell Ca	2.7
Basal Cell Ca	2.6	Low-Grade UPM	2.4	Renal Cell Ca	2.4
High-Grade UPM	2.0	Papillary Ca	2.4	Hodgkin's Lymphoma	1.8
Renal Cell Ca	1.7	Transitio- nal cell ca	2.3	Meningioma	1.7
Signet Ring Stro- mal Tm	1.5	Signet Ring Stro- mal Tm	1.7	Invasive Lobular Ca	1.5
Transitional cell ca	1.5	Lymphoma	1.5	Non Small Cell Ca	1.3
Low Grade UPM	1.4	Malignant Mesotheli- oma	1.3	Signet Ring Stromal Tm	1.3
Lymphoma	1.3	Diffuse large B Cell Lymphoma	1.2	Malignant Mesotheli- oma	1.2
Malignant Mesot- helioma	1.2	Renal Cell Ca	1.2	Lymphoma	1.0

Ca: Cancer Tm: Tumor UPM: Urothelial Pelvic Mass

## Discussion

In this study, we found that 58.3% of the cancer cases were male patients. This rate is close to the global rate (55.2 %), the Turkish national rate (61.9 %), and the rate found in a previous study by Ozekinci [7]. When the cases were classified by age, the most frequent age range was between 51–60 years. In terms of gender and age, the most frequent age range of the cases was between 61–70 years for males and between 41–50 years for females. Ozekinci found that the highest incidences of cancer were in patients over the age of 60 [7]. Studying cases in Hatay, Arıca et al. found that the average age of women with cancer was 54.5 years, and the average age of men with cancer was 63.1 years [8]. Bayram et al. analyzed patients in Van and found that the most frequent average age for both men and women with cancer was between 55 – 60 years [9]. Alternatively, it has been stated in other studies that 55% of cancer patients in the United States are above the age of 65 [10]. In our study, the average age for male patients was comparable with the literature. The average age for women was between 41–50 years, which was lower than other studies. This difference might be attrib-

uted to the fact that more breast cancer cases were included in our study, and that the average age of women with breast cancer in Turkey is between 40–50 years, thus resulting in a lower average [11]. Another potentially influential factor is that regular cancer screenings are often suggested to women who apply to the Family Health Care System for various reasons, such as pregnancy, childbirth, or general preventative care.

According to Globocan data published by International Cancer Agency (IARC) the distribution of the five most common cancer types in males respectively lung, prostate, colorectal, bladder, stomach, and in women; breast, thyroid, colorectal, corpus of the uterus, lung cancer [12].

Based on the latest data of the Ministry of Health, in Turkey, lung cancer was the most frequent type of cancer seen in men, followed by bladder, prostate and colorectal cancers. In women, most frequently observed cancer type was breast cancer, followed by thyroid, colorectal, and uterine cancers [13]. The number of cancer cases has been increasing globally and in Turkey, and will presumably continue to do so. Conversely, we observed an increase in cancer cases starting in 2003 and a decrease in overall cases since 2006. We believe that the decrease we observed might be a result of patients visiting other pathological diagnosis centers that have been established in Diyarbakır and other cities in the last ten years. While the Dicle University Pathology Centre had previously served as the region's pathological diagnosis center, patients now have more options in their respective communities. Another reason for the decrease could be the advent of the Family Health Care System and the provision of free public services offered by the Early Cancer Diagnosis, Screening, and Education Centre (KETEM), which provides cancer screenings and works to raise public awareness of the disease.

Compared to studies by Bozkurt et al. in Sırnak [14], Arıca et al. in Hatay [8], our analysis showed that lung cancer was the most frequent type of cancer, which is comparable to both global and Turkish estimates. These numbers may be similar because the Department of Pathology at Dicle University organizes its archival files in a very systematic and organized way, thereby reflecting the rigor and characteristics of the country-wide statistical data. The frequency of malignant mesothelioma cases based on exposure to asbestos in the region may have also contributed to this finding [15].

Whereas skin cancer was the most frequent type of cancer in Ozekinci's study of Dicle University Hospital cases, the most frequent type of cancer in our study was lung cancer. Decreased exposure to sunshine as a result of technological developments in the field of agriculture over the last years may have contributed to this result.

Gastric cancers were the 4<sup>th</sup> most prevalent type of cancer throughout Turkey, and Gastrointestinal cancers are among the top five cancers that lead to death [13], the 5<sup>th</sup> most-prevalent in Bozkurt et al. and the 3<sup>rd</sup> most-common in Ozekinci's study; our finding was similar [7, 14]. In addition to genetic factors, regional risk factors such as daily dietary habits such as eating copious amounts of hot, salty, and fatty foods as well as consuming insufficient amounts of fruits and vegetables could have contributed to this finding [16].

Table 3. Distribution of cancer cases according to the Ages

Kanser Türleri Percent	Age Groups									Total n %	Mean ± SD	P
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80				
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent				
Lung	,0%	3,3%	2,9%	9,2%	18,0%	14,3%	11,5%	16,2%	433	11,9%	48,73 ± 10,59	0,001
Oral cavity	,0%	3,3%	3,2%	3,1%	4,5%	1,5%	,5%	,0%	98	2,7%	40,8 ± 11,14	0,001
Abdomen	4,8%	7,8%	2,7%	2,9%	1,2%	,4%	,5%	,0%	64	1,8%	32,53 ± 14,21	0,001
CNS	11,1%	15,7%	5,2%	2,8%	1,3%	1,2%	,0%	,0%	96	2,6%	29,56 ± 14,69	0,013
Renal	9,5%	,7%	4,1%	2,0%	2,7%	1,9%	1,0%	,0%	85	2,3%	39,5 ± 15,13	0,001
Skin	14,3%	6,5%	11,0%	7,2%	6,5%	8,4%	2,4%	8,1%	266	7,3%	41,47 ± 14,74	0,001
Spleen	,0%	,0%	,0%	,3%	,3%	,3%	,0%	,0%	8	,2%	46,75 ± 8,34	0,882
Chest	11,1%	1,3%	7,7%	4,9%	5,9%	3,7%	5,3%	5,4%	189	5,2%	42,80 ± 15	0,001
Ophthalmic	9,5%	,0%	,0%	,0%	,3%	,2%	,2%	,0%	12	,3%	28,83 ± 24,98	0,198
Intestinum	,0%	2,0%	,5%	,2%	,1%	,0%	,0%	,0%	7	,2%	25,5 ± 11,54	0,666
Colon	3,2%	11,1%	8,3%	8,3%	8,2%	8,4%	5,3%	8,1%	289	8,0%	43,45 ± 14	0,001
Blood	1,6%	,7%	,5%	,8%	,5%	,2%	,0%	,0%	16	,4%	36,75 ± 13,6	0,261
Hepatic	,0%	,7%	2,3%	2,3%	2,3%	1,3%	,5%	5,4%	64	1,8%	43 ± 12,47	0,001
Bone	15,9%	6,5%	1,8%	3,4%	2,6%	1,9%	,2%	2,7%	94	2,6%	36,35 ± 16,56	0,001
Lymphadenopathy	3,2%	5,2%	2,5%	3,1%	2,5%	1,3%	,5%	,0%	79	2,2%	38,15 ± 13,65	0,001
Larynx	3,2%	,0%	1,4%	7,2%	2,7%	9,6%	8,4%	,0%	201	5,5%	49,87 ± 12,03	0,001
Mediastinum	,0%	,7%	,2%	1,2%	,0%	,1%	,0%	,0%	11	,3%	34,59 ± 9,43	0,004
Breast	,0%	12,4%	14,0%	14,0%	11,8%	3,6%	3,3%	2,7%	333	9,2%	39,22 ± 11,97	0,001
Bladder	,0%	1,3%	2,5%	3,4%	5,7%	10,3%	8,8%	5,4%	221	6,1%	51,02 ± 11,17	0,001
Stomach	1,6%	,0%	5,9%	2,3%	9,4%	12,8%	21,7%	27,0%	348	9,6%	52,82 ± 12,19	0,001
Nasopharyngeal	3,2%	7,8%	2,9%	1,1%	,6%	,9%	,2%	5,4%	51	1,4%	33,53 ± 17,66	0,002
Over	1,6%	2,0%	2,9%	1,7%	,6%	,6%	,0%	,0%	39	1,1%	33,96 ± 12,46	0,005
Esophagus	,0%	,0%	,0%	,8%	,7%	2,0%	2,9%	2,7%	43	1,2%	54,80 ± 10,09	0,001
Pancreas	,0%	,0%	,0%	,0%	,6%	,4%	,0%	,0%	10	,3%	49,5 ± 5,16	0,527
Prostate	,0%	,0%	,0%	,0%	3,2%	10,6%	20,8%	8,1%	215	5,9%	58,38 ± 7,23	0,001
Gall bladder	,0%	,0%	,0%	,6%	,9%	,4%	,5%	2,7%	20	,6%	49 ± 10,89	0,05
Cerviks	,0%	,7%	1,8%	3,9%	1,4%	,7%	,7%	,0%	57	1,6%	39,88 ± 10,85	0,001
Testis	,0%	1,3%	1,4%	,8%	,0%	,0%	,0%	,0%	13	,4%	27,80 ± 7,25	0,368
Thyroid	3,2%	9,2%	13,5%	8,6%	3,2%	1,3%	2,4%	,0%	185	5,1%	35,01 ± 12,82	0,001
Uterus	,0%	,0%	,5%	3,4%	1,7%	,9%	1,4%	,0%	54	1,5%	44,38 ± 10,75	0,001
Vulva	,0%	,0%	,2%	,0%	,3%	,0%	,2%	,0%	5	,1%	45,5 ± 14,14	0,449
Vagina	,0%	,0%	,0%	,2%	,1%	,1%	,2%	,0%	4	,1%	50,5 ± 12,9	1,000
Neck	3,2%	,0%	,5%	,3%	,2%	,3%	,7%	,0%	14	,4%	41,92 ± 20,60	0,989
Total	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	3624	100,0%	44,37 ± 14,54	0,001

Breast cancer is the most common type of cancer in women, 1 out of every 4 female cancers diagnosed is breast cancer. When breast cancer stages are examined, 11.1% of the invasive cases in the database are a distant stage. It is seen that 44.5% of the women who are diagnosed with breast cancer in Turkey are between 50-69 years old and 40.4% are in the age range of 25-49 years [13]. Breast cancer was the third-most-prevalent type of cancer in our study, which is also comparable to the literature. However, this rate was contrary to Ozekinci's finding in his study of Dicle University Hospital cases [7]. Our result may be related to the fact that more studies are now available and more breast cancer diagnoses are made as a result of early diagnosis screening methods. In our study, the colorectal cancer frequency was also comparable to the literature. High fat and meat consumption in the region, as well as environmental conditions, could be contributing factors [17, 18].

### Conclusion

Family medicine is an individual, protective, integrative, and multi-disciplinary branch. Hence, it is imperative that physicians know the diseases specific to their regions and take the necessary measures to make early diagnoses. In this study, we tried to determine the most frequent cancer types in the area by using data from Dicle University Hospital, which is the regional hospital. We believe this study will be instructive for our future studies, which will help us to protect our patients and diagnose these diseases earlier.

### Scientific Responsibility Statement

*The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.*

**Animal and human rights statement**

*All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.*

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**Conflict of interest**

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